

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

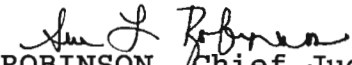
SYNGENTA SEEDS, INC.,)	
)	
Plaintiff,)	
)	
v.)	Civ. No. 02-1331-SLR
)	
MONSANTO COMPANY, DEKALB)	
GENETICS CORP., PIONEER HI-)	
BRED INTERNATIONAL, INC.,)	
DOW AGROSCIENCES, LLC, and)	
MYCOGEN PLANT SCIENCE, INC.)	
and AGRIGENETICS, INC.,)	
collectively d.b.a. MYCOGEN)	
SEEDS,)	
)	
Defendants.)	

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MEMORANDUM OPINION

Dated: December 8, 2005
Wilmington, Delaware


ROBINSON, Chief Judge

I. INTRODUCTION

On July 25, 2002, plaintiff Syngenta Seeds, Inc. ("plaintiff") filed this action alleging Monsanto Company, DeKalb Genetics Corp, Dow Agrosiences, LLC and Mycogen Plant Science Inc. and Agrigenetics, Inc. (collectively called "defendants") sold certain *Bacillus thuringiensis* ("Bt") corn products infringing U.S. Patent Nos. 6,403,865 (the "'865 patent"), 6,075,185 (the "'185 patent"), and 6,320,100 (the "'100 patent"). The case was tried to a jury from November 29, 2004 through December 10, 2004. On December 9, 2004, the court granted defendants' motion as a matter of law that the asserted claims from the '100 patent and '185 patent were not infringed. The '865 patent claims remaining at issue for the jury were: claim 11, depending from claim 1; claim 19, depending from claims 11 and 1 (claim "19/11"); claim 19, depending from claims 16 and 1 (claim "19/16"); claim 20, depending from claims 11 and 1 (claim "20/11"); claim 20, depending from claims 16 and 1 (claim "20/16"); and claim 21, depending from claim 1. On December 14, 2004, the jury returned a verdict, finding that: (1) the asserted claims were infringed by defendants' MON810 YieldGard Bt corn, Herculex 1 Bt corn, and TC6275 non-commercial Bt corn; (2) claims 19/16, 20/16 and 21/1 were invalid as anticipated by the Lundquist patent, the prior invention of Monsanto scientists, and the prior invention of Bt11 by Sandoz; (3) claims 11, 19/11,

19/16, 20/11 and 21 were invalid as obvious in view of the prior art; (4) asserted claims 11, 19/11 and 20/11 were invalid for failure to comply with the written description requirement of 35 U.S.C. § 112, ¶ 1; (5) claims 19/16, 20/16 and 21 were not invalid for failure to comply with the written description requirement of 35 U.S.C. § 112, ¶ 1; and (6) claims 19/16, 20/16 and 21 were not invalid as indefinite. (D.I. 487 at 1-8)

Plaintiff now renews its motion, pursuant to Rule 50(b) of the Federal Rules of Civil Procedure, for judgment as a matter of law ("JMOL") that the asserted claims of the '865 patent are not invalid. (D.I. 515) Plaintiff also moves for a new trial under Rule 59 of the Federal Rules of Civil Procedure. (D.I. 515) Defendants oppose the motion. (D.I. 526)

II. BACKGROUND

The '865 patent relates generally to fertile transgenic corn plants that express a gene encoding a Bt insecticidal protein so as to cause mortality to European corn borers ("ECB"). (D.I. 293 at 2) Bt is a soil bacteria that produces proteins toxic to certain insect pests, but is not harmful to humans. (D.I. 303 at 1) For many years, farmers sprayed formulations of Bt bacteria onto crops as pesticides. With the advances in the field of plant biotechnology came expression of genes encoding the

production of the Bt insecticidal protein in plants.¹ (Id.) Two technologies come into play in the creation of corn plants that express a Bt gene at levels toxic to corn pests: (1) a Bt gene that is capable of being expressed at insecticidal levels in a corn plant; and (2) a means for stably inserting the gene into the genome of a corn plant (i.e., corn transformation). (D.I. 303 at 3; D.I. 309 at 3-4)

Plaintiff's predecessor, Ciba-Geigy Corp. ("Ciba"), redesigned a Bt corn gene with a DNA sequence different from that of a native Bt gene, which can be measured by its G+C content (around 60-65%) compared to the G+C content for a native Bt gene (below 40%). (D.I. 309 at 4) In field tests, Ciba found that the modified Bt gene, when transformed into corn, expressed at superior levels than the native Bt gene in corn. (D.I. 309 at 5) One Ciba transformation event, identified as "Event 176," resulted in the launch of a commercial Bt corn product. (Id.) The '865 patent is derived from the Event 176 research.

The '865 patent is entitled "Method of Producing Transgenic Maize Using Direct Transformation of Commercially Important Genotypes." The claims at issue are generally directed to fertile transgenic corn plants containing a modified Bt gene that

¹The Federal Circuit addressed the technology involved in making codon modifications to a Bt gene to increase its expression in plants in great length in Mycogen Plant Science, Inc. v. Monsanto Co., 243 F.3d 1316 (Fed. Cir. 2001).

expresses Bt protein in an amount sufficient to cause mortality to ECB.

Sandoz Corporation ("Sandoz") developed a separate Bt corn product in the early 1990's known as "Bt11." In 1989, defendant Monsanto provided Sandoz with a synthetic Bt gene that contained modifications from the native sequence. In 1991, Sandoz retained Hoechst to transform the synthetic Bt gene obtained from defendant Monsanto into a corn plant. Hoechst performed the transformation procedure, produced regenerated plants and sent tissue samples from the regenerated plants to Sandoz in September 1991. One of these transformed corn lines eventually became known as Bt11. Around the same time, Monsanto was also performing work on Bt corn events (the "Monsanto work").

Plaintiff requests a JMOL that claim 11 is not invalid as obvious and, therefore, claims 19 and 20, which depend from claim 11, are not invalid as obvious. (D.I. 516 at 1) Plaintiff also argues that claims 1/19, 20/16, and 21/1 are not anticipated as a matter of law. (D.I. 516 at 17) Plaintiff requests a JMOL that claims 11, 19/11 and 20/11 are not invalid for lack of an adequate written description. Finally, plaintiff requests a new trial for several alleged evidentiary errors. (D.I. 516 at 2-3) The court finds the jury's verdict pertaining to the obviousness of the claims at issue, the anticipation of the claims at issue and the adequacy of the written description is supported by

substantial evidence. Therefore, plaintiff's JMOL motions are denied. Plaintiff's motions for a new trial are similarly denied.

III. STANDARD OF REVIEW

A. Motion for Judgment as a Matter of Law

To prevail on a renewed motion for judgment as a matter of law following a jury trial, the moving party "must show that the jury's findings, presumed or express, are not supported by substantial evidence or, if they were, that the legal conclusion(s) implied [by] the jury's verdict cannot in law be supported by those findings.'" Pannu v. Iolab Corp., 155 F.3d 1344, 1348 (Fed. Cir. 1998) (quoting Perkin-Elmer Corp. v. Computervision Corp., 732 F.2d 888, 893 (Fed. Cir. 1984)).

"Substantial' evidence is such relevant evidence from the record taken as a whole as might be accepted by a reasonable mind as adequate to support the finding under review." Perkin-Elmer Corp., 732 F.2d at 893. In assessing the sufficiency of the evidence, the court must give the non-moving party, "as [the] verdict winner, the benefit of all logical inferences that could be drawn from the evidence presented, resolve all conflicts in the evidence in his favor and, in general, view the record in the light most favorable to him." Williamson v. Consol. Rail Corp., 926 F.2d 1344, 1348 (3d Cir. 1991); Perkin-Elmer Corp., 732 F.2d at 893. When considering the sufficiency of evidence, the court

must also take into account the required quantum of proof; for a patent invalidity verdict, the quantum of proof is clear and convincing evidence, because a patent is presumed valid. Juicy Whip, Inc. v. Orange Bang, Inc., 292 F.3d 728, 736 (Fed. Cir. 2002). In addition, the court may not determine the credibility of the witnesses nor "substitute its choice for that of the jury between conflicting elements of the evidence." Perkin-Elmer Corp., 732 F.2d at 893. In sum, the court must determine whether the evidence reasonably supports the jury's verdict. See Dawn Equip. Co. v. Ky. Farms Inc., 140 F.3d 1009, 1014 (Fed. Cir. 1998).

B. Motion for a New Trial

Federal Rule of Civil Procedure 59(a) provides, in pertinent part:

A new trial may be granted to all or any of the parties and on all or part of the issues in an action in which there has been a trial by jury, for any of the reasons for which new trials have heretofore been granted in actions at law in the courts of the United States.

The decision to grant or deny a new trial is within the sound discretion of the trial court. See Allied Chem. Corp. v. Daiflon, Inc., 449 U.S. 33, 36 (1980); Olefins Trading, Inc. v. Han Yang Chem. Corp., 9 F.3d 282, 290 (3d Cir. 1993). Unlike a JMOL motion, the court need not view the evidence in the light most favorable to the verdict winner when considering a motion

for a new trial. See Valentin v. Crozer-Chester Medical Center, 986 F. Supp. 292, 298 (E.D. Pa. 1997) (citing Magee v. General Motors Corp., 213 F.2d 899, 900 (3d Cir. 1954)); see also 9A Wright & Miller, Federal Practice and Procedure § 2531 (2d ed. 1994) ("On a motion for new trial the court may consider the credibility of witnesses and the weight of the evidence."). Among the most common reasons for granting a new trial are: (1) the jury's verdict is against the clear weight of the evidence, and a new trial must be granted to prevent a miscarriage of justice; (2) newly-discovered evidence exists that would likely alter the outcome of the trial; (3) improper conduct by an attorney or the court unfairly influenced the verdict; or (4) the jury's verdict was facially inconsistent. See Zarow-Smith v. N.J. Transit Rail Operations, Inc., 953 F. Supp. 581, 584-585 (D.N.J. 1997) (citations omitted). The court must proceed cautiously, mindful that it should not simply substitute its own judgment of the facts and the credibility of the witnesses for those of the jury. Rather, the court should grant a new trial on the basis that the verdict was against the weight of the evidence only where a miscarriage of justice would result if the verdict were to stand. See Williamson, 926 F.2d at 1352; EEOC v. Del. Dep't of Health and Soc. Servs., 865 F.2d 1408, 1413 (3d Cir. 1989).

IV. DISCUSSION

A. JMOL on Invalidity

Plaintiff challenges the jury verdict that: (1) claims 11, 19/11 and 20/11 of the '865 patent are invalid as obvious; (2) claims 19/16, 20/16 and 21 of the '865 patent are invalid as anticipated; and (3) claims 11, 19/11 and 20/11 of the '865 patent are invalid for lack of written description.

An issued patent is presumed valid. See 35 U.S.C. § 282. To overcome this presumption, the party challenging validity bears the burden of proving by clear and convincing evidence that the invention fails to meet the requirements of patentability. See Hewlett-Packard Co. v. Bausch & Lomb, Inc., 909 F.2d 1464, 1467 (Fed. Cir. 1990). Clear and convincing evidence is evidence that "could place in the ultimate fact finder an abiding conviction that the truth of [the] factual contentions are 'highly probable.'" Colorado v. New Mexico, 467 U.S. 310, 316 (1984). In seeking to overturn a jury's verdict of invalidity, the movant needs to show "an absence of substantial evidence on the underlying facts supporting the jury's verdict," taking the clear and convincing quantum of proof into account. Juicy Whip, Inc., 292 F.3d at 736, 737.

1. Obviousness

In determining obviousness, the court uses the four-part test set forth in Graham v. John Deere Co., 383 U.S. 1 (1966). Iron Grip Barbell Co. Inc. v. USA Sports, Inc., 392 F.3d 1317,

1320 (Fed. Cir. 2005). This test requires the court to examine (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) the objective evidence of nonobviousness. Id. The objective evidence includes commercial success, satisfaction of a long-felt need and copying. Id. at 1325. These secondary sources can rebut a primary showing of obviousness based on the prior art. Id. At dispute in the motion for JMOL is the difference between the claimed invention and the prior art, as well as the objective evidence of nonobviousness.

a. Disclosure of 60% G+C content in the prior art

A finding of obviousness requires that each element of the claimed invention exists in the prior art and a motivation to combine the various prior art references exists. See Velander v. Garner, 348 F.3d 1359, 1363 (Fed. Cir. 2003). Plaintiff argues that the jury's obviousness verdict cannot stand because none of the prior art references teach a G+C content of 60%, as required by claims 11, 19/11, and 20/11 of the '865 patent. Although none of the prior art references includes an example of a modified Bt nucleotide sequence with a G+C content of 60%, U.S. Patent Application Pub. No. US 2001/0003849 A1 (the "Barton Application") discloses such. Dr. Barton testified at trial that, taking from the preferred codon table in the Barton

Application the codon occurring at the highest frequency for each amino acid and following the teaching of said patent application, he could create a synthetic gene with a G+C content of over 60%. (D.I. 512 at 1242-43) The court recognizes that testimony of an inventor regarding the scope of his or her patented invention has little probative value without factual support. UpJohn Co. v. Mova Pharm. Corp., 225 F.3d 1306, 1311 (Fed. Cir. 2000) (finding an expert's conclusory opinion testimony regarding obviousness is not substantial evidence to support a jury's verdict). Dr. Barton did support his conclusion, however, with the calculation he used to achieve the value of G+C content.² Furthermore, two other expert witnesses concluded that Dr. Barton's analysis was correct. Such evidence is not, as plaintiff argues, merely hindsight by the inventor and the experts; the Barton Application states that "[p]erforming such a codon substitution for the remaining portion of the coding region might still be expected to increase efficiency of expression, although less dramatically."³

²Plaintiff argues that the testimony of Dr. Barton regarding his calculations was improper and demand a new trial on that basis. The court rejects this argument below.

³Plaintiff argues that the Barton Application teaches away from the 60% G+C content by suggesting that coding the entire region, as opposed to coding just a portion as is shown in the examples in the application, will produce no better results. The Barton Application need not state that the 60% G+C content is the preferred or the best content level in order to invalidate the claims as obvious. In re Fulton, 391 F.3d 1195, 1200 (Fed. Cir. 2004) ("[O]ur case law does not require that a particular combination must be the preferred, or the most desirable,

The jury did have substantial evidence on which to base the conclusion that the 60% G+C content was disclosed in the Barton Application.⁴

b. Motivation to Combine

Plaintiff also argues that there was insufficient evidence of a motivation to combine. There is no dispute that the prior art discloses transformation of corn using a Bt gene that has been modified taking into account maize codon usage preference. Plaintiff bases its argument on the ground that none of the prior art discloses the 60% G+C content and, therefore, no motivation can exist to combine a gene with this G+C content with the maize transformation prior art. Because the court upheld the jury's finding that the Barton Application disclosed a Bt gene with a 60% G+C content, the court upholds the jury verdict finding a

combination described in the prior art in order to provide motivation for the current invention."). The Barton Application discloses coding the entire region, which results in a 60% G+C content.

⁴Plaintiff also asserts that none of the references teaches or suggests transformed inbred corn plants. However, Dr. Dellaporta, a scientist experienced in making inbreds, testified that an inbred corn line can be made from non-inbred Bt corn plants by one of ordinary skill in the art using routine skill and conventional procedures. Dr. Dellaporta also testified that the prior art Lundquist patents disclose conventional breeding techniques, equally applicable to plants containing a transgene to arrive at a transgenic inbred. Furthermore, Dr. Lee, plaintiff's corn breeding expert, testified that the notion of making hybrid corn by crossing inbreds has been around for decades. The jury's conclusion that the prior art taught how to make transgenic Bt inbreds was supported by substantial evidence.

motivation to combine.

c. Secondary Factors

The court concludes that the claims are obvious absent substantial evidence of pertinent secondary factors supporting patentability. See Iron Grip, 392 F.3d at 1323. The jury concluded, by finding the claims obvious, that the secondary factors did not serve to override the primary case of obviousness. Plaintiff argues that evidence of unexpected results of Event 176, commercial success of Event 176, the failure of others and the recognition of the inventor's work by other in the industry lead to the conclusion that the claims of the '865 patent were not obvious.

In contrast to plaintiff's arguments, the jury was presented with substantial evidence negating the positive results of Event 176 corn.⁵ "A nexus must be established between the merits of the claimed invention and evidence of commercial success." Iron Grip, 392 F.3d 1324. While a presumption arises that the commercial success is due to the claimed invention, the jury could properly have found that insufficient evidence was presented to form this nexus because only the total sales of the

⁵Evidence was presented, through testimony of Mr. Bailey-Serres, Mr. Bernens, and Dr. Meeusen, that products marketed by defendant Mycogen and plaintiff, containing lower G+C content than Event 176, have higher performance than Event 176.

Event 176 corn were presented.⁶ With respect to the "failure of others", the jury may have concluded that defendant Monsanto and Sandoz achieved ECB control with their Bt corn before plaintiff made Event 176 corn,⁷ thereby negating a long felt need.

Plaintiff points to the licensing of Event 176 between it and defendant Mycogen. Again, no nexus was shown between the license agreement and the merits of the invention. See id. Finally, the jury heard testimony from plaintiff's own witness, Mr. Bernens, that the agricultural product of the year award given to plaintiff in 1998 was mainly for the success of Bt11 and not Event 176. The court finds that the record does not contain evidence sufficient to rebut the primary case of obviousness and overturn the jury's verdict. The jury's determination of obviousness was supported by substantial evidence.

2. Anticipation

Plaintiff next argues that it is entitled to JMOL that claims 19/16, 20/16 and 21/1 are not invalid as anticipated by Bt11 and the Monsanto work because Bt11 and the Monsanto work are not prior art. The court concludes that the jury had substantial evidence to find that the Bt11 and the Monsanto work were

⁶Plaintiff's witness, Mr. Bernens, who presented the sales evidence, admitted he could not link the commercial success with the genes from a technical perspective.

⁷The jury concluded that certain of the claims of the '865 patent were anticipated by defendant Monsanto's work, Sandoz's Bt11 invention and the Lundquist patent.

conceived before plaintiff's invention. Conception of the broad claims of the '865 patent requires two components: (1) a Bt gene modified for expression in corn; and (2) a reliable transformation method to introduce the gene into corn. Plaintiff argues that it conceived of the invention on August 22, 1989, and asserts that the Bt11 gene was not conceived until either March 1991 or March 1992.⁸ Further, plaintiff asserts that the Monsanto work was not conceived until June 1992.

The jury had substantial evidence that plaintiff did not conceive of the invention until May or October of 1991. Dr. Messing testified that plaintiff did not synthesize a Bt gene that would work in corn until May 1991. Furthermore, according to the testimony of Dr. Carnes, Dr. Christou and Dr. Messing, plaintiff did not have a reliable method of transforming the corn until October of 1991.

The jury was also presented with testimony that Sandoz received the Bt gene used to make Bt11 in August 1989 and then contracted with Hoechst, well-known in the field, for corn transformation services. The result was Bt11. Sandoz received transformed plant material from Hoechst in September 1991 and confirmed Hoechst's successful transformation by early October

⁸Plaintiff asserts that the Bt11 gene was not conceived until, at the earliest, March of 1991, when the transformation was performed by Hoechst, a company outside the United States. Plaintiff argues that conception was not complete until this transformation was disclosed to Sandoz in March 1992.

1991. Therefore, the jury had substantial evidence on which to base its conclusion that the Bt11 gene was conceived before plaintiff conceived of the claimed invention.

The jury also heard testimony that defendant Monsanto had constructed a modified Bt gene and confirmed expression in corn cells by August 1989 and had the corn transformation component in place in April 1990 when the Armstrong/Fromm collaboration⁹ achieved its reproducible corn transformation method.¹⁰ Therefore the jury had substantial evidence on which to base a conclusion that the Monsanto work was prior art to the Syngenta patent.

3. Written Description

The court denies plaintiff's motion for JMOL that claims 11, 19/11 and 20/11 are not invalid for lack of an adequate written description of the "at least about 60%" limitation. The '865 patent discloses only one working gene in the claimed range of over 60%. The jury presumably found this insufficient support for such an broad range of values. As the parties demonstrate in their briefs, the Federal Circuit has concluded that one

⁹Dr. Armstrong, a Monsanto employee, worked in a collaboration with Dr. Fromm to achieve corn transformation.

¹⁰The results of Drs. Armstrong and Fromm were also published in September 1990. Plaintiff concedes that Fromm shared his method with Monsanto in July 1990 and Monsanto obtained its first fertile transgenic corn in November 1990. All of these dates are prior to plaintiff's conception in October 1991.

embodiment, which falls within a claimed range, does provide adequate written description in some instances whereas, in other instances, one embodiment falling within a claimed range does not provide adequate written description. See In re Wertheim, 541 F.2d 257 (C.C.P.A. 1976); Bilstad v. Wakalopoulos, 386 F.3d 1116 (Fed. Cir. 2004). "Because of the fact-sensitive nature of the written description inquiry, [the Federal Circuit] has often warned against misapplication of precedents in this area." Union Oil Co. Of Cal. v. Atlantic Richfield Co., 208 F.3d 989, 1001 (Fed. Cir. 2000). The court does not find the jury lacked substantial evidence to conclude the claims are invalid for lack of written description.¹¹

B. Motions for a New Trial

Plaintiff's motions for a new trial are denied. The introduction of evidence regarding claim 1 was not error because all the asserted claims depend from claim 1. Claim 1 includes limitations that defendants are required to prove exist in the prior art in order for the jury to find the claims at issue are anticipated or obvious. Furthermore, the jury was extensively instructed on the notion that each claim's validity should be considered separately. Admission of the evidence was not

¹¹The court also concludes, for the same reason, that a determination that the 60% G+C limitation was not incorporated by reference to sufficiently describe the claimed invention is supported by substantial evidence.

erroneous and did not prejudice the proceedings.¹²

Admission of Dr. Barton's testimony was not erroneous. Plaintiff's objection at trial was that Dr. Barton's calculation of the G+C content of the Bt gene in the Barton Application was "improper expert testimony." However, Dr. Barton could properly testify about what he invented as a fact witness and plaintiff's expert admits that the calculations Dr. Barton performed were simple math.¹³ This testimony was not erroneous.¹⁴

V. CONCLUSION

For the reasons discussed above, plaintiff's motions for JMOL and new trial are denied. An order consistent with this memorandum opinion shall issue.

¹²The court concludes that the "prior invention" and the "prior art" jury instructions do not warrant a new trial. The instructions were not objected to at trial. Furthermore, plaintiff proposed the prior invention instruction.

¹³Plaintiff also argues that Dr. Barton altered, modified or expanded his invention. However, the jury was adequately instructed to disregard any attempts by Dr. Barton to supplement his patent application.

¹⁴The court also denies plaintiff's request for a new trial on evidentiary grounds. The court finds that the verdict is not against the clear weight of the evidence such that a miscarriage of justice would result were the verdict to stand.